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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,198	09/25/2001	Randall K. Bartman	0007975-0014/CIT-3289	1270

7590 10/23/2002

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EXAMINER

NGUYEN, PHILLIP

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,198

Applicant(s)

BARTMAN ET AL.

Examiner

Phillip Nguyen

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-- Th MAILING DATE of this communication app ars on the cover sh et with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.


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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 7, line 18 read as "silicon-oxide" which should be written as -- silicon-dioxide -- or silica.

The abstract is not limited into a single paragraph.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-16 are confusing, vague and indefinite. The claims recite "using silicon-oxide and silicon-oxynitride based external feedback elements" without the recitation of any connection or relation with the other elements to form the external feedback elements. The claims recite a method/apparatus for creating a narrow linewidth hybrid semiconductor laser with "attaching said narrow linewidth hybrid semiconductor laser to a waveguide" is confusing and unclear".

The claims further recite “soldering a semiconductor optical gain chip” that acts as the internal element to a micromachined silicon bench which the added element is totally unrelated to the rest of the elements which render the claims confusing, vague, and indefinite.

Claim 16 fails to provide elements to create the structure of the “said narrow linewidth hybrid semiconductor laser”.

Claim 16 recites “the use of silicon-oxide and silicon-oxynitride based external feedback element” which is not clear how “silicon-oxide and silicon-oxynitride” are used and the structure of the external feedback elements. It is not clear how the “micromachined silicon bench” connected to the “external feedback elements”.

Claim 23 recites “the hybridization method” which is not clear whether the claim is method or apparatus. It is not clear how the “narrow linewidth hybrid semiconductor laser is achieved in miniature micromachined units.”

Claim 25 is not clear how the “waveguide terminates in a feedback element.”

Claims 27-30 recite “is tailored”, “are precisely aligned” which includes method steps to aligned the waveguide and gain chips; therefore, they render the claim to indefinite and vague.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Bestwick et al. ('210.)

With respect to claim 16, Doerr discloses in Figure 1 a hybrid semiconductor laser comprising an silicon-oxide and silicon-oxynitride based external feedback element (col. 3, lines 28-33), the laser attached to a waveguide 3; and a semiconductor optical gain chip 2 soldered to a silicon bench (col. 2, lines 37-38.)

With respect to claim 17, Bestwick discloses the external feedback elements use Bragg gratings 4.

With respect to claims 18 and 19, Bestwick discloses in Figure 4 the gratings 4 are coupled to a main waveguide trunk 10 and the Bragg gratings are formed by the periodic variation of the refractive index (col. 1, lines 42-44.)

Claims 1-15 recite a method for creating a narrow linewidth hybrid semiconductor laser. Bestwick discloses the product. It is inherent product by process for performing a method as recited in the claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-23, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bestwick et al. ('210) in view of Deacon ('189.)

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With respect to claim 20-23, Bestwick discloses all the limitations as recited in the claim except for a flip-chip aligner-bonder and tunable laser. Deacon discloses a flip-chip aligner-bonder and the laser is tunable in Figure 1 and in column 6, lines 20-23. For the improvement of the laser, it would have been obvious to the one having ordinary skill in the art at the time the invention was made to use the flip chip aligner bonder and tunable laser chip as taught by Deacon to apply to the laser of Bestwick in order to improve the performance of the laser.

With respect to claims 27-30, Bestwick discloses all the limitations as recited in the claim except for the waveguide is tailored to match the gain chip, the waveguide and gain chip are precisely aligned using micromachined units, and the alignment in horizontal direction is achieved during soldering operation. Deacon discloses the alignment methods of the waveguide and the gain chip on the substrate (col. 6, lines 38-54.) For the improvement of the laser, it would have been obvious to the one having ordinary skill in the art at the time the invention was made to use the alignment method as taught by Deacon to apply to the laser of Bestwick in order to improve the performance of the laser.

Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bestwick et al. ('210) in view of Reichert ('413.) Bestwick discloses an antireflection coating (col. 1, lines 58-60) and the limitations as recited in the claim except for the optical gain chip is coupled into an silicon-dioxide/silicon-oxynitride/silicon-oxide waveguide. Reichert discloses a waveguide formed of silicon-oxynitride. For the improvement of this, it would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide the silicon-dioxide/silicon-oxynitride/silicon-oxide waveguide by combining the silicon-oxide waveguide of Bestwick and silicon-oxynitride waveguide by Reichert.

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Citation of Pertinent References

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Bestwick et al. disclose External Cavity Laser, U.S. Patent No. 6101210

The patent to Deacon discloses Lenticular Structure for Integrated Waveguides, U.S. Patent No. 6341189

The patent to Reichert et al. disclose Integrated Optic Waveguide Immunosensor, U.S. Patent No. 6350413

Communication Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 703-305-4966. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5:30 PM

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip, can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are:

TC2800 Official Before-Final RightFAX - (703) 872-9318

TC2800 Official After-Final RightFAX - (703) 872-9319

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0658.

October 15, 2002



Phillip Nguyen, AU 2828



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